

## Remarks

By this amendment two claims have been cancelled, prior claim 9 has been written into claim 1, and several other claims amended to correct informalities or for better readability. **The claims remaining in consideration are claims 1-8 and 11-21.** As an aid to the Examiner, the preceding clean version of the claims shows all the claims in the application, including the claims not amended hereby. Similarly, the marked-up version also includes the claims not amended hereby.

Applicant has amended claim 1 to recite, “a polyurethane gel that includes an undercured reaction product of polyols and polyisocyanates, and having elastic microspheres as filler.” As explained below it is submitted that the references, alone or in combination, do not teach this claim limitation.

The Office Action rejected claims 1, 2, 7 and 8 under 35 U.S.C. 103(a) as being unpatentable over von Bittera, et al. in view of Kanno, et al.; rejected claims 4-6 under 35 U.S.C. 103(a) as being unpatentable over von Bittera et al. in view of Abe and in further view of Steppan et al.; and further rejected claims 2-8 under 35 U.S.C. 103(a) as being unpatentable over Burgdorfer, et al. in view of Steppan et al. Because amended claim 1 incorporates all the limitations of prior claim 9, these rejections are now moot. Even so, these references are discussed below.

The Office Action rejected claims 1, 9, 11-13, and 16 under 35 U.S.C. § 103(a) as being unpatentable over von Bittera et al. in view of Steppan et al and Abe; and further rejected claims 1-11, 14-19, and 21 under 35 U.S.C. § 103(a) as being unpatentable over von Bittera et al. in view of Steppan et al. The von Bittera reference teaches that a polyurethane adhesive is a product that is **crosslinked** when used. Furthermore, von Bittera does not teach that such a crosslinked polyurethane would lead to Applicant's invention. Moreover, as noted by the Examiner, von Bittera does not teach the inclusion of elastic microspheres as filler in the polyurethane gel. Although the Examiner states that Steppan et al. teaches the use of elastic microspheres as filler in the polyurethane gel, a study of Steppan et al., in fact, shows that it teaches the use of “known fillers of other types” and “rigid” microspheres, but does not teach the use of elastic microspheres as filler in the polyurethane gel.

Further, Abe does not teach the use of elastic microspheres as filler, which is clear from Figures 1A and 1B of Abe. Moreover, Abe does not disclose or teach the use of polyurethane gel as a synthetic adhesive. Therefore, claims 1-8, 11-19, and 21 are deemed patentable.

The Examiner also rejected claims 1-3, 7, 9-11, 14-19 and 21 under 35 U.S.C. § 103(a) as being unpatentable over von Bittera et al. in view of Abe. Applicant's invention is not rendered obvious by von Bittera for the reasons stated above. Furthermore, Abe does not teach the use of elastic microspheres as filler, which is clear from Figures 1A and 1B of Abe. Moreover, Abe does not disclose or teach the use of polyurethane gel as a synthetic adhesive. Therefore, claims 1-3, 7, 11, 14-19 and 21 are deemed patentable.

The Examiner also rejected claims 1, 2, 7-11, 14-19 and 21 under 35 U.S.C. 103(a) as being unpatentable over von Bittera, et al. in view of Kanno, et al. Von Bittera, et al. does not render Applicant's invention obvious for the reasons stated above. As the Examiner noted, von Bittera does not teach the inclusion of elastic microspheres in the polyurethane adhesive gel. Furthermore, Kanno, et al. does not disclose, or even suggest, a polyurethane gel that includes elastic microspheres as **filler**. Figures 1a and 1b of Kanno, et al. clearly show that the elastic microspheres are **not** used as filler. Thus, claims 1, 2, 7, 8, 11, 14-19 and 21 are deemed patentable.

The Examiner also rejected claim 20 under 35 U.S.C. 103(a) as being unpatentable over von Bittera, et al. in view of Steppan et al. as applied to claim 1 above, and further in view of Konig et al. Although Konig teaches a process for using allophanate polyisocyanates to produce polyurethane foams, it does not teach a process for producing polyurethane gels. Moreover, as explained above, von Bittera, in view of Steppan et al., does not render claim 1 obvious and Konig does not render it obvious even in combination therewith. Accordingly, claim 20 is deemed patentable.

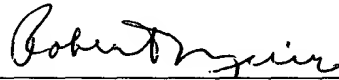
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Abe, does not render claim 1 obvious, and Konig does not render it obvious even in combination therewith. Accordingly, claim 20 is deemed patentable.

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It is submitted that this application is now in condition for allowance and a favorable action is solicited.

Respectfully submitted,



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## Version With Markings to Show Changes Made

The following is a marked-up version of the claims, with all changes shown by conventional comparison (underlining and bracketing):

1. (Amended) A material comprising:  
a polyurethane gel that includes an uncured reaction product of polyols and polyisocyanates, and having elastic microspheres as filler.
2. The material according to claim 1, wherein the elastic microspheres includes polymer material.
3. The material according to claim 2, wherein the polymer material includes polyolefin.
4. The material according to claim 2, wherein the polymer material includes expanded polymer material.
5. (Amended) The material according to claim 1, wherein the elastic microspheres have a cover layer coating that includes an inorganic material.
6. The material according to claim 5, wherein the inorganic material includes calcium carbonate.
7. (Amended) The material according to claim 1, wherein the elastic microspheres have a diameter in a range of 10  $\mu\text{m}$  to 150  $\mu\text{m}$ .
8. (Amended) The material according to claim 1, wherein [a proportion] the percentage of elastic microspheres in the material is from 0.1% to 10 % of total material weight.

9. (Cancelled)

10. (Cancelled)

11. (Amended) The material according to claim 1, wherein the polyol component of the polyurethane gel [includes a polyol component having] has an isocyanate functionality of at least 5.2.

12. (Amended) The material according to claim 1, wherein the polyol component of the polyurethane gel [includes a polyol component having] has an isocyanate functionality of at least 6.5.

13. (Amended) The material according to claim 1, wherein the polyol component of the polyurethane gel [includes a polyol component having] has an isocyanate functionality of at least 7.5.

14. (Amended) The material according to claim 1, wherein the polyol component of the polyurethane gel [includes a polyol component that] includes a mixture of:

a first component that includes one or more polyols having hydroxyl numbers below 112 and second component that includes one or more polyols having hydroxyl numbers in the range from 112 to 600, wherein a weight ratio of the first component to the second component is in a range from 90:10 to 10:90, an isocyanate index of a reaction mixture of the first component and the second component lies in a range from 15 to 60 and a product of isocyanate functionality and functionality of the polyol component is at least 6.

15. (Amended) The material according to claim 1, wherein the polyol component [for producing the] of the polyurethane gel includes one or more polyols having a molecular weight in a range between 1,000 and 12,000 and an OH number in a range between 20 and 112 and a product of isocyanate functionality and functionality of the one or more polyols is at least 5 and an isocyanate index is in a range between 15 and 60.

16. The material according to claim 1, further including isocyanates utilized in producing the polyurethane gel, wherein the isocyanates are of a formula  $Q(NCO)_n$ , in which n represents 2 to 4 and Q selected from the group consisting of an aliphatic hydrocarbon radical having 8 to 18 C atoms, a cycloaliphatic hydrocarbon radical having 4 to 15 C atoms, an aromatic hydrocarbon radical having 6 to 15 C atoms and an araliphatic hydrocarbon radical having 8 to 15 C atoms.

17. The material according to claim 1, wherein the polyurethane gel includes pure form isocyanates utilized in production of the polyurethane gel.

18. The material according to claim 1, wherein the polyurethane gel includes modified isocyanates utilized in production of the polyurethane gel.

19. The material according to claim 1, wherein the polyurethane gel includes urethanised isocyanates utilized in production of the polyurethane gel.

20. The material according to claim 1, wherein the polyurethane gel includes allophanised isocyanates utilized in production of the polyurethane gel.

21. The material according to claim 1, wherein the polyurethane gel includes biurethised isocyanates utilized in production of the polyurethane gel.